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EXAMINER	
TAKEUCHI, YOSHITOSHI	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,632	TWIGG, MARTYN VINCENT	
	Examiner	Art Unit	
	YOSHITOSHI TAKEUCHI	1735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10,15,16,18 and 21-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10,15,16,18 and 21-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-8, 10, 15-16, 18, and 21-27 are presented for examination. Claims 9, 11-14. 17, and 19-20 are cancelled.

2. The prior 35 U.S.C. § 103(a) rejection of claims 1-8, 10, and 15-16 is withdrawn as a result of the applicant's argument regarding the inapplicability of Shimrock regarding the limitation "wall-flow meter."

Means Plus Function – 35 USC § 112 sixth paragraph

3. Regarding claim **18**, applicant claims "means for sealingly isolating," "means for reducing pressure," and "means for dosing."

A claim limitation will be presumed to invoke 35 U.S.C. § 112, sixth paragraph, if it meets the following 3-prong analysis: (A) the claim limitations uses the phrase "means for" or "step for;" (B) the "means for" or "step for" is modified by functional language; and (C) the phrase "means for" or "step for" is not modified by sufficient structure, material, or acts for achieving the specified function. See MPEP § 2181(I).

To properly invoke 35 U.S.C. § 112 sixth paragraph, the specification must provide an adequate disclosure showing what is meant by that language in a way that one skilled in the art will understand what structure (or material or acts) will perform the recited function. See MPEP § 2181(II).

Claim Language	Structural Supporting Language	Citation to Specification
Means for sealingly isolating	"Sealable closure 130 can comprise interlocking members (not shown) on first end 150 and second end 240 of the contained and an optionally expandable o-ring or gasket made from a rubber such as a synthetic rubber polymer."	p.11
Means for reducing pressure	"A first end 150 of the container 120 is connected to a vacuum pump 16 via pressurisible line 180."	p.10
Means for dosing	"Valve 300 and pump 310, each also 25 controlled by CPU 220, in combination provide a means for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid."	p.10

Claim 18 properly invokes 35 U.S.C. § 112 sixth paragraph.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

APPARATUS

5. Claims 18 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimrock (US 4,550,034).

a. Regarding claim **18**, Shimrock teaches an apparatus comprising a seal (Figure 1, item 20, means for sealingly isolating the plurality of channels of the ceramic wall-flow filter from the surrounding atmosphere); a vacuum pump (4:11-12 and Figure 1, item 23, , means for reducing pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels); a pan (Figure 1, item 10, at least one

reservoir for holding a liquid containing at least one catalyst component or a precursor thereof); and a valve (Figure 1, item 13 and 4:40-43, for controlling the amount of coating slurry being pumped).

The preamble limitation "for use in manufacturing a catalyzed ceramic wall-flow filter having filter walls, wherein said filter walls define a plurality of channels and have a pore structure, the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter" is intended use and does not patentably distinguish the instant invention from the art of record. See MPEP § 2111.02(II).

b. Regarding claim **26**, Shimrock teaches an apparatus comprising a pressurizable container having a sealable closure (Figure 1, items 15 and 20 for receiving the ceramic wall-flow filter); a vacuum pump (4:11-12 and Figure 1, item 23, to reduce pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels); a pan (Figure 1, item 10, at least one reservoir for holding a liquid containing at least one catalyst component or a precursor thereof); and a pump (4:40-43, for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid).

The preamble limitation "for use in manufacturing a catalyzed ceramic wall-flow filter having filter walls, wherein said filter walls define a plurality of channels and have a pore structure, the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter" is intended use and does not patentably distinguish the instant invention from the art of record. See MPEP § 2111.02(II).

c. Regarding claim **27**, Shimrock teaches the apparatus of claim 26, wherein the limitation "the vacuum pump maintains the reduced pressure in the isolated channels to below the surrounding atmospheric pressure during dosing of the liquid" does not provide further structural limitations to further limit the apparatus claim. See MPEP § 2114.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

APPARATUS

7. Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (GB 1,515,733).

a. Regarding claim **18**, Brisley teaches an apparatus, said apparatus comprising o-rings as means for sealingly isolating the plurality of channels of the ceramic wall-flow filter from the surrounding atmosphere (Figure 1, items 24-25, wherein "surrounding atmosphere" is interpreted to mean the atmosphere outside of item 1); a vacuum (Figure 1, item 36, for reducing pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels); and a mechanically or electrically operated rotating valve stem as the means for dosing (Figure 1, item 34 and 5:61-67, for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid).

Hoyer does not expressly teach "at least one reservoir for holding a liquid containing at least one catalyst component or a precursor thereof." However, it suggests

that at least one reservoir is provided since slurry is provided intermittently thorough item 37 in Figure 1 (5:61-67).

In the alternative, the feed-line leading to item 37 may also be considered to be a "reservoir."

The preamble limitation "for use in manufacturing a catalyzed ceramic wall-flow filter having filter walls, wherein said filter walls define a plurality of channels and have a pore structure, the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter" is intended use and does not patentably distinguish the instant invention from the art of record. See MPEP § 2111.02(II).

b. Regarding claim **21**, Brisley teaches the apparatus of claim 21, wherein the apparatus is at least semi-automated to control both the means for reducing pressure in the isolated channels and the means for dosing the liquid. See Figure 1, item 34 and 5:61-67), wherein item 34 is a "mechanically or electrically operated rotating valve stem or cam operated, spring biased valve plugs, etc., may be utilized in connection with the multiple port valving means 34 to provide for the timed introductions of the various treating streams to the treating chamber," which as can be seen in Figure 1, includes the vacuum and slurry.

8. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (GB 1,515,733) in view of Shimrock (US 4,550,034).

a. Regarding claim **26**, Hoyer teaches an apparatus comprising a pressurizable container (Figure 1, item 1) having a sealable closure for receiving the ceramic wall-flow filter (Figure 1, items 24-25, o-rings).

Hoyer does not expressly teach "at least one reservoir for holding a liquid containing at least one catalyst component or a precursor thereof." However, it suggests that at least one reservoir is provided since slurry is provided intermittently thorough item 37 in Figure 1 (5:61-67).

In the alternative, the feed-line leading to item 37 may also be considered to be a "reservoir."

Hoyer does not expressly teach "a pump for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid" or "a vacuum pump to reduce pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels."

However, Shimrock teaches an apparatus for use in manufacturing a catalyzed ceramic monolith, wherein the apparatus comprises a seal (Figure 1, item 20, means for sealingly isolating the plurality of channels of the ceramic wall flow filter from the surrounding atmosphere; a vacuum pump (4:11-12 and Figure 1, item 23), a pan (Figure 1, item 10, at least one reservoir for holding a liquid containing at least one catalyst component or a precursor thereof); (4:40-43, for dosing the isolated and evacuated channels with a pre-determined quantity of the liquid where the valve may be

automatically be operated); and a valve (Figure 1, item 13 and 4:40-43, for controlling the amount of coating slurry being pumped).

As a result, it would have been obvious to a person of ordinary skill at the time of the invention to use a pump to pull then vacuum used in the Hoyer apparatus, since Shimrock teaches a means of creating a vacuum is through a pump.

In addition, it would have been obvious to a person of ordinary skill at the time of the invention to use a pump to pump the slurry in the Hoyer apparatus, since Shimrock teaches a means of injecting slurry is though a pump.

The preamble limitation "for use in manufacturing a catalyzed ceramic wall- flow filter having filter walls, wherein said filter walls define a plurality of channels and have a pore structure, the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter, said apparatus is intended use and does not patentably distinguish the instant invention from the art of record. See MPEP § 2111.02(II).

b. Regarding claim **27**, Hoyer in view of Shimrock teaches the apparatus of claim 26, wherein the limitation "the vacuum pump maintains the reduced pressure in the isolated channels to below the surrounding atmospheric pressure during dosing of the liquid" does not provide further structural limitations to further limit the apparatus claim. See MPEP § 2114.

9. Claims 1-6, 10, 15-16, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brisley et al (WO01/12320) in view of Hoyer et al (GB 1,515,733).

METHOD

a. Regarding claim **1**, Brisley teaches a method of manufacturing a catalyzed ceramic wall flow filter comprising a plurality of channels, wherein the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter (2:6-13 and 10:14-16), the method comprising the steps of: (b) contacting a surface of the evacuated channel walls with a liquid containing at least one catalyst component, but does not teach step (a) or the limitation, "wherein the liquid permeates the pore structure of the evacuated channel walls, wherein reducing the pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid."

Hoyer teaches a method of manufacturing a catalyzed ceramic filter with a plurality of channels (1:38-41 and 57), the method including the step of: (a) reducing the pressure in a pore structure of the channel walls relative to the surrounding atmospheric pressure in order to increase the speed and quality of the coating on the substrate (2:86-91, meeting the limitation, "wherein reducing the pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid" and "to provide evacuated channel walls").

As a result, it would have been obvious to a person of ordinary skill at the time of the invention to reduce the pressure in a pore structure of the channel walls relative to the surrounding atmospheric pressure to provide evacuated channel walls of the Brisley wall flow filter in order to increase the speed and quality of the coating on the substrate, as taught by Hoyer (2:86-91).

By reducing the pressure in the in a pore structure of the channel walls relative to the surrounding atmospheric pressure, it would be expected that once the liquid is contacted in step (b), "the liquid permeates the pore structure of the evacuated channel walls."

b. Regarding claim **2**, Brisley in view of Hoyer teaches the method of claim 25, wherein Brisley teaches dipping in a solution of platinum chloride then drying (10:18, steps (b)-(c)), followed by several other steps, then a final dipping in a Pt/Rh solution then drying (10:24-25, repeating steps (b)-(c)), then calcining (10:26, step (d)).

In the alternative, Brisley as modified by Hoyer teaches steps (a) through (d) (see claims 1 supra and 25 infra) in order to make a layer of NOx absorber or reduction catalyst (5:33) and further teaches sandwiching layers or overlaying different wash coats (6:2-3), wherein a person of ordinary skill in the art would understand that steps (a)-(c) may be repeated to form sandwiched layers or overlaying different wash coats prior to the step (d) calcining.

c. Regarding claim **3**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the pressure reduction in the pore structure of the channel walls is maintained during the liquid contacting step (7:18-20, wherein "at least" in "by applying…a vacuum, drawing said liquid component into at last a portion of the open wall-flow monolith channels" would include holding the vacuum until all channels are filled).

d. Regarding claim **4**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the liquid contains the precursor and comprises an aqueous solution of at least one metal salt (e.g. 10:9-10, platinum chloride).

e. Regarding claim **5**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the liquid containing at least one catalyst component comprises slurry of at least one particulate metal oxide material in a carrier medium (7:17 and e.g. 7-8).

f. Regarding claim **6**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches a NOx absorber particle may be "Ba-Cu-0 or MnO_2-$BaCuO_2$, possibly with added CeO_2, or Y-Ba-Cu-0 and Y-Sr-Co-0" (5:19), metal oxide materials, with a diameter of 1-500 μm (6:2-3), overlapping the instantly claimed "D50 in the range 1-20 μm."

g. Regarding claim **10**, Brisley in view of Hoyer teaches the method of claim 1, wherein platinum chloride (10:9-10, the at least one catalyst component) is loaded in the catalyzed ceramic wall-flow filter in an amount of 2 wt%/wt% (overlapping the instantly claimed range of "from 20-120 g/liter" at 20 g/liter).

h. Regarding claim 1**5**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the ceramic filter is made from a material selected from the group consisting of silicon carbide, alumina, cordierite, and mullite (4:25-26).

i. Regarding claim 1**6**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the gas must pass through the channel wall in order to pass through the outlet (e.g. Figure 1), so the porosity and pore size of the filter are a result

effective variable, determining the amount of air that may pass through the filter. See MPEP § 2144.05(II)(A). As a result, it would have been obvious to a person of ordinary skill at the time of the invention to make the filter of Brisley as modified by Hoyer with "a porosity of 40-60%, prior to use."

j. Regarding claim **22**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the carrier medium comprises water (e.g. 10:9).

k. Regarding claim **25**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches further comprising the steps of: (c) drying the filter containing the catalyst component or its precursor (10:25), and (d) calcining the filter containing the catalyst component or its precursor (10:26).

10. Claims 7-8, 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brisley et al (WO01/12320) in view of Hoyer et al (GB 1,515,733) and further in view of Dornseiffer (US 2004/0235658).

a. Regarding claims **7-8**, Brisley in view of Hoyer teaches the method of claim 1, but does not expressly teach "the liquid containing the at least one catalyst component comprises a sol of at least one metal oxide material in a carrier medium."

Dornseiffer teaches a wall-flow filter (¶0004) with noble metal or transition-metal oxide catalysts (¶0015), and further teaches adding catalyst particles with diameters smaller than 100nm (overlapping the instantly claimed range of 10-500 nm) in a colloid-coating solution (¶0027, wherein a colloid is also known as a sol) in order to achieve a find dispersion of catalytically active centers within the filter (¶0026), which in turn

ensures an intensive contact between the pollution particulates which have settled within the filter and the catalyst.

As a result, it would have been obvious to a person of ordinary skill at the time of the invention to use a sol solution with catalyst particles with diameters smaller than 100nm in the method of Brisley as modified by Hoyer in order to improve the catalytic properties of the resulting wall flow filter, as taught by Dornseiffer.

b. Regarding claims **7-8**, Brisley as modified by Hoyer and Dornseiffer teaches the method of claim 7, wherein Dornseiffer teaches the carrier medium may be water (¶0037).

11. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brisley et al (WO01/12320) in view of Hoyer et al (GB 1,515,733) and further in view of Twigg et al (US 2007/0028604).

a. Regarding claims **15** and **24**, Brisley in view of Hoyer teaches the method of claim 1, wherein Brisley teaches the ceramic filter is made from a material selected from the group consisting of silicon carbide, alumina, cordierite, and mullite (4:25-26).

Twigg teaches a wall flow filter (¶0004) with catalysts such as platinum and palladium (¶0027), wherein the filter material comprises ceramic material including at least one of silicon carbide, aluminum nitride, silicon nitride, aluminum titanate, sintered metal, alumina, cordierite, mullite, pollucite and a thermet such as Al_2O_3/Fe, Al_2O_3/Ni and B_4C/Fe, or composites thereof.

As a result, a thermet such as Al_2O_3/Fe, Al_2O_3/Ni and B_4C/Fe, is a functional equivalent of the silicon carbide, alumina, cordierite, and mullite taught by Brisley and may be substituted for one another. See MPEP § 2144.06(II).

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12. In the alternative, claims 1, 5, 15, 22, and 25are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (GB 1,515,733) in view of Brisley (WO 01/12320).

a. Regarding claim **1**, Hoyer teaches a method of manufacturing a catalyzed ceramic filter with a plurality of channels (1:38-41 and 57), the method including the step of: (a) reducing the pressure in a pore structure of the channel walls relative to the surrounding atmospheric pressure prior to contacting the surface of the evacuated channel walls with the liquid in order to increase the speed and quality of the coating on the substrate (2:86-91, meeting the limitation, "wherein reducing the pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid" and "to provide evacuated channel walls") and (b) contacting a surface of the evacuated channel walls with a liquid containing at least one catalyst component and wherein the liquid permeates the pore structure of the evacuated channel walls. (2:86-91 and 104-106).

Hoyer does not expressly teach the filter being a "wall flow filter, wherein the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter." However, Brisley teaches a method of manufacturing a catalyzed ceramic wall flow filter comprising a plurality of channels, wherein the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter (2:6-13 and 10:14-16), the method comprising the steps of: (b) contacting a

surface of the evacuated channel walls with a liquid containing at least one catalyst component, but does not teach step (a) or the limitation, "wherein the liquid permeates the pore structure of the evacuated channel walls, wherein reducing the pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid," wherein a wall flow meter includes catalyst support members.

As a result, it would have been obvious to a person of ordinary skill at the time of the invention to use the method of Hoyer to coat the catalyst support members of a wall flow filter since wall flow members have catalyst support members.

b. Regarding claims **5** and **22**, Hoyer in view of Brisley teaches the method of claim 1, wherein Hoyer teaches the liquid containing at least one catalyst component (2:19-21 and 99-109) comprises a slurry of at least one particulate metal oxide material in a water carrier medium (e.g. 116-118, wherein alumina is a metal oxide).

c. Regarding claim **15**, Hoyer in view of Brisley teaches the method of claim 1, wherein Hoyer teaches the ceramic filter is made from a material selected from the group consisting of cordierite and mullite (1:69-73).

d. Regarding claim **25**, Hoyer in view of Brisley teaches the method of claim 1, wherein Hoyer further teaches: (c) drying the filter containing the catalyst component or its precursor, and (d) calcining the filter containing the catalyst component or its precursor. (2:19-21, 2:99-109 and 6:8).

Response to Arguments

13. Applicant's arguments with respect to claims 1-8, 10, 15-16, 18, and 21-27 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the 35 U.S.C. § 103(a) rejections of independent claims 18 and 26 for an apparatus, the applicant argues Shimrock does not teach the features of claim 18, including the apparatus being used in the manufacture of a wall-flow filter or a vacuum pump.

In response, the examiner respectfully notes that the object on which the apparatus works does not patentably distinguish the apparatus. See MPEP § 2115. Furthermore, the preamble recitation regarding the "wall-flow filter" is considered to be intended use and does not patentably distinguish the instant invention from the art of record. See MPEP § 2111.02(II).

As for the apparatus requiring a vacuum pump, Shimrock teaches a vacuum pump (4:11-12 and Figure 1, item 23), as indicated supra.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSHITOSHI TAKEUCHI whose telephone number is (571) 270-5828. The examiner can normally be reached on Monday-Thursday 9:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YOSHITOSHI TAKEUCHI/
Examiner, Art Unit 1735

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1735